

On your graph paper,

graph

Isaac Newton

James Gleick

Longitude

Dava Sobel

$$s(1) = 1$$

$$s(2) = 1 + \frac{1}{2}$$

$$s(3) = 1 + \frac{1}{2} + \frac{1}{4}$$

$$s(4) = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$$

$$s(5) = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16}$$

$$\left\{ \begin{array}{l} ? \Delta ? \\ \frac{1}{2} \\ \frac{1}{4} \\ \vdots \\ \left(\frac{1}{2}\right)^{n-1} \end{array} \right.$$

$$\begin{array}{lcl} S(1) = 1 & \textcircled{\frac{1}{n}} & \\ S(2) = 1 + \frac{1}{2} & \frac{1}{2} & 1 + \frac{1}{2} \\ S(3) = 1 + \frac{1}{2} + \frac{1}{3} & \frac{1}{3} & \text{ENTER} \\ S(4) = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} & \frac{1}{4} & 1.5 \\ \vdots & \vdots & \text{MATH} \\ & & \text{ENTER} \\ & & \text{ENTER} \\ & & \textcircled{\frac{3}{2}} \end{array}$$

$$\begin{array}{ccccccc}
 1 & + \frac{1}{2} & + \frac{1}{3} & \frac{1}{4} & \frac{1}{5} & \frac{1}{6} & \frac{1}{7} & \frac{1}{8} & \left( \frac{1}{9} \dots \right. \\
 \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & & & \underbrace{\hspace{1cm}} \\
 & & > \frac{1}{2} & & > \frac{1}{2} & & & > \frac{1}{2}
 \end{array}$$

Calculus Made Easy  
 Sylvanus Thompson

$1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots$   
harmonic sequence

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{11} + \frac{1}{13} + \frac{1}{17} + \frac{1}{19} + \dots$$